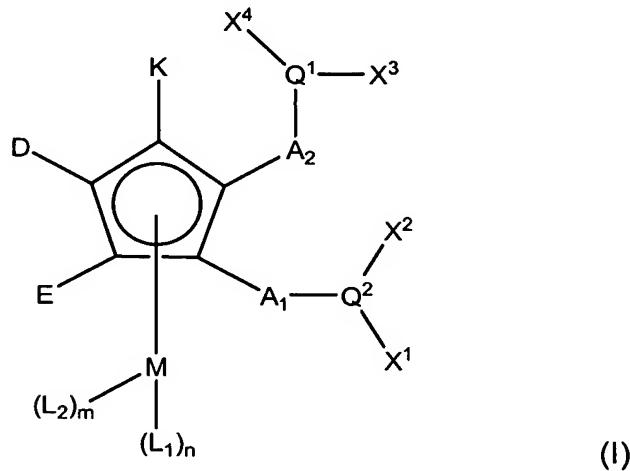


Amendments to the Claims:

The following claims will replace all prior versions of the claims in this application (in the unlikely event that no claims follow herein, the previously pending claims will remain):

1. (Original) A compound obtainable by combining:
 - (a) a Group VIIIB metal or a compound thereof; and,
 - (b) a compound of formula I or salt thereof:



wherein:

A_1 and A_2 , and A_3 , A_4 and A_5 (when present), each independently represent lower alkylene;

K is selected from the group consisting of hydrogen, lower alkyl, aryl, Het, halo, cyano, nitro, $-OR^{19}$, $-OC(O)R^{20}$, $-C(O)R^{21}$, $-C(O)OR^{22}$, $-N(R^{23})R^{24}$, $-C(O)N(R^{25})R^{26}$, $-C(S)(R^{27})R^{28}$, $-SR^{29}$, $-C(O)SR^{30}$, $-CF_3$ or $-A_3-Q^3(X^5)X^6$;

D is selected from the group consisting of hydrogen, lower alkyl, aryl, Het, halo, cyano, nitro, $-OR^{19}$, $-OC(O)R^{20}$, $-C(O)R^{21}$, $-C(O)OR^{22}$, $-N(R^{23})R^{24}$, $-C(O)N(R^{25})R^{26}$, $-C(S)(R^{27})R^{28}$, $-SR^{29}$, $-C(O)SR^{30}$, $-CF_3$ or $A_4-Q^4(X^7)X^8$;

E is selected from the group consisting of hydrogen, lower alkyl, aryl, Het, halo, cyano, nitro, -OR¹⁹, -OC(O)R²⁰, -C(O)R²¹, -C(O)OR²², -N(R²³)R²⁴, -C(O)N(R²⁵)R²⁶, -C(S)(R²⁷)R²⁸, -SR²⁹, -C(O)SR³⁰, -CF₃ or -A₅-Q⁵(X⁹)X¹⁰;

or both D and E together with the carbon atoms of the cyclopentadienyl ring to which they are attached form an optionally substituted phenyl ring:

X¹ represents CR¹(R²)(R³), congressyl or adamantyl, X² represents CR⁴(R⁵)(R⁶), congressyl or adamantyl, or X¹ and X² together with Q² to which they are attached form an optionally substituted 2-phospha-adamantyl group, or X¹ and X² together with Q² to which they are attached form a ring system of formula Ia;

X³ represents CR⁷(R⁸)(R⁹), congressyl or adamantyl, X⁴ represents CR¹⁰(R¹¹)(R¹²), congressyl or adamantyl, or X³ and X⁴ together with Q¹ to which they are attached form an optionally substituted 2-phospha-adamantyl group, or X³ and X⁴ together with Q¹ to which they are attached form a ring system of formula Ib;

X⁵ represents CR¹³(R¹⁴)(R¹⁵), congressyl or adamantyl, X⁶ represents CR¹⁶(R¹⁷)(R¹⁸), congressyl or adamantyl, or X⁵ and X⁶ together with Q³ to which they are attached form an optionally substituted 2-phospha-adamantyl group, or X⁵ and X⁶ together with Q³ to which they are attached form a ring system of formula Ic;

X⁷ represents CR³¹(R³²)(R³³), congressyl or adamantyl, X⁸ represents CR³⁴(R³⁵)(R³⁶), congressyl or adamantyl, or X⁷ and X⁸ together with Q⁴ to which they are attached form an optionally substituted 2-phospha-adamantyl group, or X⁷ and X⁸ together with Q⁴ to which they are attached form a ring system of formula Id;

X⁹ represents CR³⁷(R³⁸)(R³⁹), congressyl or adamantyl, X¹⁰ represents CR⁴⁰(R⁴¹)(R⁴²), congressyl or adamantyl, or X⁹ and X¹⁰ together with Q⁵ to which they are attached form an optionally substituted 2-phospha-adamantyl group, or X⁹ and X¹⁰ together with Q⁵ to which they are attached form a ring system of formula Ie;

Q^1 and Q^2 , and Q^3 , Q^4 and Q^5 (when present), each independently represent phosphorus, arsenic or antimony;

M represents a Group VIIB or VIIIB metal or metal cation thereof;

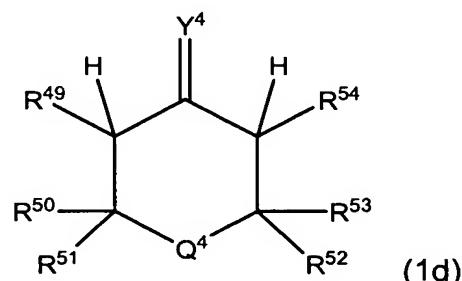
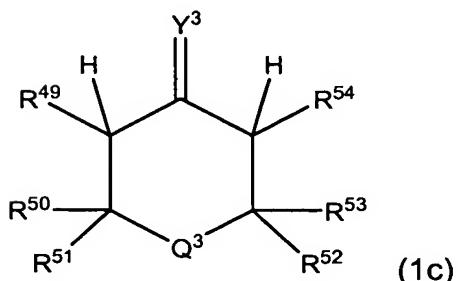
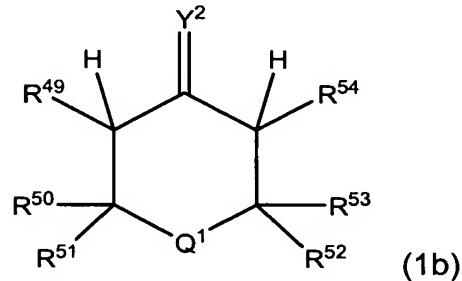
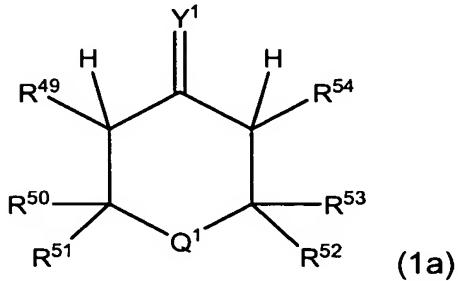
L_1 represents an optionally substituted cyclopentadienyl, indenyl or aryl group;

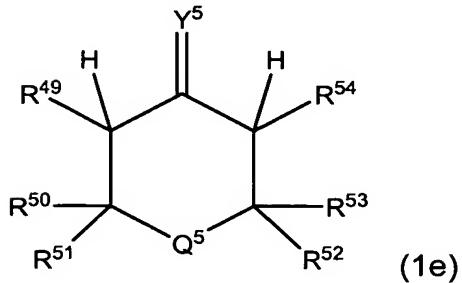
L_2 represents one or more ligands each of which are independently selected from hydrogen, lower alkyl, alkylaryl, halo, CO, P (R^{43})(R^{44}) R^{45} or N(R^{46})(R^{47}) R^{48} ;

R^1 to R^{18} and R^{31} to R^{42} , when present, each independently represent hydrogen, lower alkyl, aryl, halo or Het;

R^{19} to R^{30} and R^{43} to R^{48} , when present, each independently represent hydrogen, lower alkyl, aryl or Het;

the ring systems of formula 1a, 1b, 1c, 1d and 1e are represented by the formulae





R^{49} , R^{54} and R^{55} , each independently represent hydrogen, lower alkyl or aryl; R^{50} to R^{53} each independently represent hydrogen, lower alkyl, aryl or Het; and Y^1 , Y^2 , Y^3 , Y^4 and Y^5 , each independently represent oxygen, sulfur or $N-R^{55}$;

$n = 0$ or 1 ;

and $m = 0$ to 5 ;

provided that when $n = 1$ then m equals 0 , and when n equals 0 then m does not equal 0 .

2. (Currently amended) A compound as claimed in claim 1, wherein if both K represents $-A_3-Q^3(X^5)X^6$ and E represents $-A_5-Q^5(X^9)X^{10}$, then D represents $-A_4-Q^4(X^7)X^8$.

3. (Currently amended) A compound as claimed in claim 1 or 2, wherein R^1 to R^{18} and R^{31} to R^{42} each independently represent hydrogen, optionally substituted C_1-C_6 alkyl or optionally substituted phenyl.

4. (Currently amended) A compound as claimed in ~~any one of claims 1 to 3~~ claim 1, wherein R^1 to R^{18} and R^{31} to R^{42} each independently represent hydrogen or non-substituted C_1-C_6 alkyl.

5. (Currently amended) A compound as claimed in ~~any one of claims 1 to 3~~ claim 1, wherein one or more of the groups R^1 to R^3 , R^4 to R^6 , R^7 to R^9 , R^{10} to R^{12} ,

R^{13} to R^{15} , R^{16} to R^{18} , R^{31} to R^{33} , R^{34} to R^{36} , R^{37} to R^{39} , R^{40} to R^{42} together with the carbon atom to which they are attached each independently form a cyclic alkyl structure.

6. (Currently amended) A compound as claimed in ~~any one of claims 1 to 3~~ claim 1, wherein one or more of the groups R^1 and R^2 , R^4 and R^5 , R^7 and R^8 , R^{10} and R^{11} , R^{13} and R^{14} , R^{16} and R^{17} , R^{31} and R^{32} , R^{34} and R^{35} , R^{37} and R^{38} , R^{40} and R^{41} together with the carbon atom to which they are attached each independently form a cyclic alkyl structure.
7. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein each of R^1 to R^{18} and R^{31} to R^{42} does not represent hydrogen.
8. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein adamantyl represents unsubstituted adamantyl or adamantyl substituted with one or more unsubstituted C₁-C₈ alkyl substituents, or a combination thereof.
9. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein 2-phospha-adamantyl represents unsubstituted 2-phospha-adamantyl or 2-phospha-adamantyl substituted with one or more unsubstituted C₁-C₈ alkyl substituents, or a combination thereof.
10. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein 2-phospha-adamantyl includes one or more oxygen atoms in the 2-phospha-adamantyl skeleton.
11. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein congressyl represents unsubstituted congressyl.

12. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein R⁵⁰ to R⁵³ each independently represent optionally substituted C₁-C₆ alkyl, trifluoromethyl or phenyl optionally substituted with non-substituted C₁-C₆ alkyl or OR¹⁹ where R¹⁹ represents non-substituted C₁-C₆ alkyl.

13. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein R⁴⁹ and R⁵⁴ each independently represent hydrogen or non-substituted C₁-C₆ alkyl.

14. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein each of Y¹ to Y⁵ represents oxygen.

15. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein X¹ is identical to X³, and X⁵, X⁷ and X⁹ when present.

16. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein X² is identical to X⁴, and X⁶, X⁸ and X¹⁰ when present.

17. (Currently amended) A compound as claimed in ~~any one of claims 1 to 14~~ claim 1, wherein X¹ represents CR¹ (R²) (R³), X² represents CR⁴ (R⁵)(R⁶), X³ represents CR⁷ (R⁸)(R⁹) and X⁴ represents CR¹⁰ (R¹¹) (R¹²).

18. (Currently amended) A compound as claimed in ~~any one of claims 1 to 14~~ claim 1, wherein X¹ represents CR¹ (R²) (R³), X² represents adamantyl, X³ represents CR⁷(R⁸)(R⁹) and X⁴ represents adamantyl.

19. (Currently amended) A compound as claimed in ~~any one of claims 1 to 14~~ claim 1, wherein X¹ represents CR¹ (R²) (R³), X² represents congressyl, X³ represents CR⁷ (R⁸) (R⁹) and X⁴ represents congressyl.

20. (Currently amended) A compound as claimed in ~~any one of claims 1 to 14~~ claim 1, wherein X^1 to X^4 each independently represent adamantyl.

21. (Currently amended) A compound as claimed in ~~any one of claims 1 to 14~~ claim 1, wherein X^1 to X^4 each independently represent congressyl.

22. (Currently amended) A compound as claimed in ~~any one of claims 1 to 14~~ claim 1, wherein X^1 and X^2 together with Q^2 to which they are attached form a ring system of formula Ia, and X^3 and X^4 together with Q^1 to which they are attached form a ring system of formula Ib.

23. (Currently amended) A compound as claimed in ~~any one of claims 1 to 14~~ claim 1, wherein X^1 and X^2 together with Q^2 to which they are attached form a 2-phospha-adamantyl group, and X^3 and X^4 together with Q^1 to which they are attached form a 2-phospha-adamantyl group.

24. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein K represents hydrogen.

25. (Currently amended) A compound as claimed in ~~any one of claims 1 to 23~~ claim 1, wherein K represents $-A_3-Q^3(X^5)X^6$.

26. (Currently amended) A compound as claimed in claim 25, wherein $-A_3-Q^3(X^5)X^6$ is identical to $-A_2-Q^1(X^3)X^4$.

27. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein D and E together with the carbon atoms of the cyclopentadienyl ring to which they are attached form an unsubstituted phenyl ring.

28. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein D and E both represent hydrogen.

29. (Currently amended) A compound as claimed in ~~any one of claims 1 to 26~~ ~~claim 1~~, wherein D represents $-A_4-Q^4(X^7)X^8$.

30. (Original) A compound as claimed in claim 29, wherein $-A_4-Q^4(X^7)X^8$ is identical to $-A_2-Q^1(X^3)X^4$.

31. (Currently amended) A compound as claimed in ~~any one claims 29 or 30~~ ~~claim 29~~, wherein E represents hydrogen.

32. (Currently amended) A compound as claimed in ~~any one claims 1 to 26, 29 or 30~~ ~~claim 1~~, wherein E represents $-A_5-Q^5(X^9)X^{10}$.

33. (Currently amended) A compound as claimed in claim 32, wherein $-A_5-Q^5(X^9)X^{10}$ is identical to $-A_2-Q^1(X^3)X^4$.

34. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ ~~claim 1~~, wherein A_1 and A_2 , and A_3 , A_4 and A_5 when present, each independently represent $-CH_2-$ or $-C_2H_4-$.

35. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ ~~claim 1~~, wherein each A_1 and A_2 , and A_3 , A_4 and A_5 when present are identical and preferably represent $-CH_2-$.

36. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ ~~claim 1~~, wherein each Q^1 and Q^2 , and Q^3 , Q^4 and Q^5 when present are identical and preferably represent phosphorous.

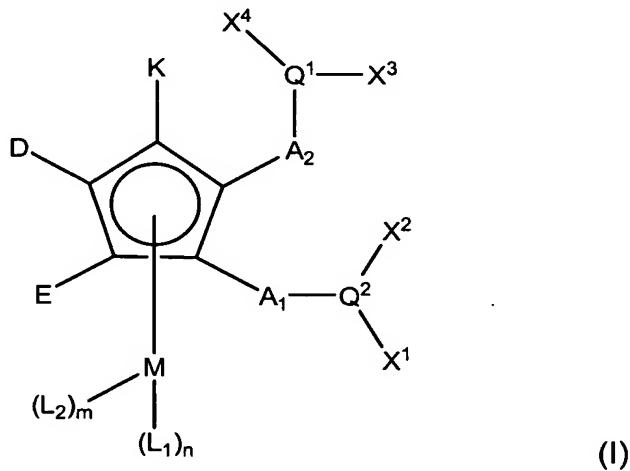
37. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ ~~claim 1~~, wherein $n=1$, $m=0$ and L_1 is selected from cyclopentadienyl, phenyl, indenyl or naphthyl, preferably unsubstituted cyclopentadienyl.

38. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1, wherein M represents iron or a metal cation thereof.

39. (Currently amended) A compound as claimed in ~~any one of the preceding claims~~ claim 1 obtainable by combining: (a) palladium or a compound thereof; and (b) a compound of formula I as defined in ~~any one of the preceding claims~~ claim 1.

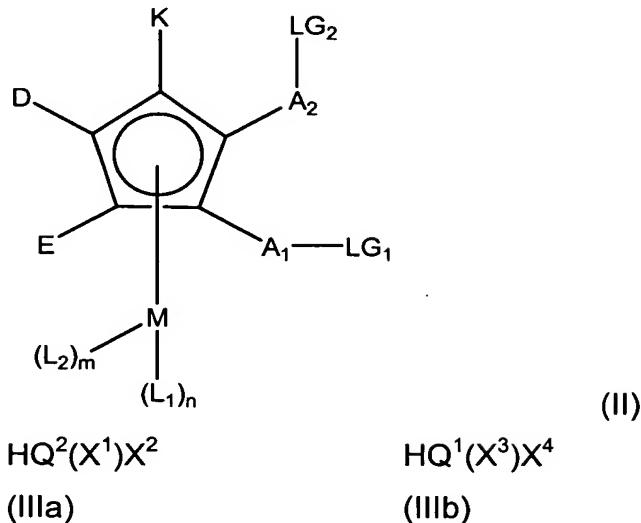
40. (Currently amended) A process for preparing a compound as defined in ~~any one of claims 1 to 39~~ claim 1 comprising combining (a) a Group VIIIB metal or compound thereof; and, (b) a compound of formula I as defined in ~~any one of claims 1 to 38~~ claim 1.

41. (Currently amended) A compound of formula I



wherein A₁, A₂, K, D, E, M, L₂, L₁, Q¹, Q², X¹, X², X³, X⁴, n and m are as defined in ~~any one of claims 1 to 38~~ claim 1.

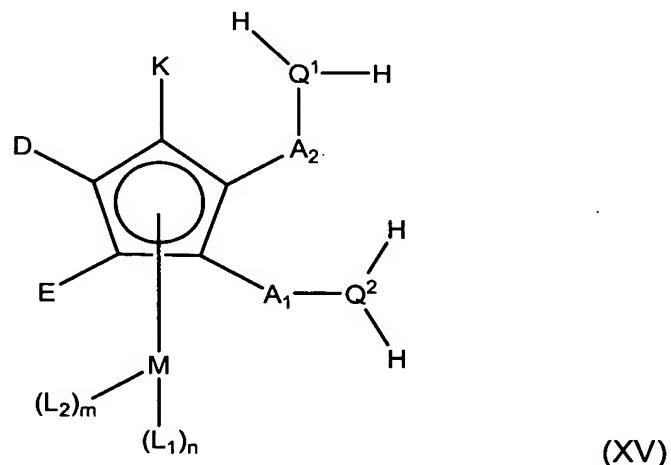
42. (Currently amended) A process for preparing a compound of formula I as defined in claim 41, comprising reacting a compound of formula II wherein A₁, A₂, K, D, E, M, L₁, L₂, n and m are as defined for a compound of formula I, and LG₁ and LG₂ represent suitable leaving groups, with a compound of formula IIIa and IIIb



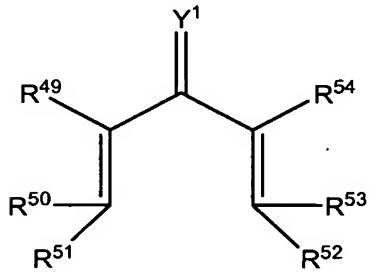
wherein X¹, X², Q², X³, X⁴ and Q¹ are as defined in ~~any one of claims 1 to 38~~ claim 1.

43. (Original) A compound of formula II as defined in claim 42.

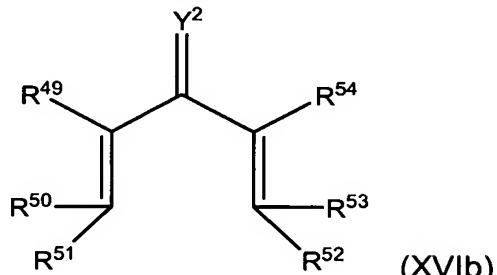
44. (Currently amended) A process for preparing a compound of formula I wherein K, D, E, M, A₂, A₁, L₂, L₁, Q¹, Q², m and n are as defined in ~~any one of claims 1 to 38~~ claim 1 and X¹ and X² together with Q² to which they are attached form a ring system of formula Ia as defined in ~~any one of claims 1 to 38~~ claim 1 and X³ and X⁴ together with Q¹ to which they are attached form a ring system of formula Ib as defined in ~~any one of claims 1 to 38~~ claim 1, comprising reacting a compound of formula XV



wherein K, D, E, M, A₂, A₁, L₂, L₁, Q¹, Q², m and n are as defined in ~~any one of claims 1 to 38~~ claim 1, with a compound of formula XVIa and XVIb



(XVIa)



(XVIb)

wherein Y¹, Y², R⁴⁹ to R⁵⁵ are as defined for a compound of formula I.

45. (Original) A compound of formula XV as defined in claim 44.

46. (Currently amended) A process for the carbonylation of an ethylenically unsaturated compound comprising contacting an ethylenically unsaturated compound with carbon monoxide and a co-reactant in the presence of a compound as defined in ~~any one of claims 1 to 39~~ claim 1.

47. (Original) A process as defined in claim 46 wherein the co-reactant includes a hydroxyl group containing compound.

48. (Currently amended) A process as claimed in claim 46 or 47 wherein the ethylenically unsaturated compound comprises ethylene, 1, 3-butadiene, oct-1-ene or vinyl acetate, preferably ethylene.

49. (Currently amended) A process as claimed in any one of claims 46 to 48, further including the step of including a source of anions.

50. (Currently amended) A composition comprising a compound as defined in ~~any one of claims 1 to 39~~ claim 1 attached to a support.

51. (Currently amended) Use of a compound as defined in ~~anyone of claims 1 to 39~~ claim 1 or a composition as defined in claim 50 as a catalyst.